THE BASIC OPEN-HEARTH STEEL PROCESS

CHAPTER, I

INTRODUCTION

Au, metallurgical processes depend on chemical reactions, \\hich arc very simple in themselves. But the understanding of these is rendered difficult owing to their being reciprocal, nnd to conditions nearly always arising which permit these react inns to take place readily, first in one and then in the opposite dijvction. Only recently tho grounds for this have btv'Min to IK* traced out, and thereby yield explanations of many phenomena, which formerly wore, obscure.

Si eel imd in^'ol, iron generally contain 99 per cent, or more iron, »nd 1 per cent, or lens of different admixtures, of which n^iun the chief amount, is formed from elements, the presence of \\hich is necessary, in order to impart desired properties in the metal. The production of such high percentage iron direct fmm the ore has not hitherto boon possible, the first product being more, often u metnl containing 4 per cent, or mure of admixtures, such metal being termexl pig iron.

In order io convert pig iron into stool the excess of foreign const it m-nts must 1>e removed, which is achieved by oxidising fhern% for which one, may employ atmospheric oxygen or that of o\v»*,en compounds,

The manufacture, of ntcjel in bulk nowadays is mainly by WCHMH of two methods : pneumatic refining, i.e., Bessemer procM'Hn; and open-hearth furnace rdining, t.«., in the open-henrfch or SionusiiH furnace. By each method steel is obtained